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MARK D. SARALINO (GENERAL)
 RENNER, OTTO, BOISELLE & SKLAR, LLP
 1621 EUCLID AVENUE, NINETEENTH FLOOR
 CLEVELAND, OH 44115-2191

EXAMINER

HAYES, BRET C

ART UNIT PAPER NUMBER

3644

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/715,176

Applicant(s)

FACCIANO ET AL.

Examiner

Bret C Hayes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12,17-27 and 38-48 is/are allowed.
- 6) ☒ Claim(s) 1-11,13-16,28 and 30-37 is/are rejected.
- 7) ☒ Claim(s) 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 7, 15, 16, 28 and 30 – 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dransfield – mistakenly cited as US Patent No. 5,159,151, which should have been 5,159,151 – in view of US Patent No. 3,970,006 to Copeland et al. (*Copeland*) (previously cited). The error in numerical citation of Dransfield has apparently caused no difficulties for Applicant.

3. Re – claim 1, Dransfield discloses the invention as claimed including: a missile, col. 2, line 18 (2:18), comprising: a payload assembly 15, e.g., as in Fig. 1; and one or more booster stages*, 2:34, separably coupled to the payload assembly 15; wherein the assembly 15 includes at least two nosecones 16, 13, and wherein one of the nosecones, namely 16, is configured to separate from the payload assembly 15 during flight of the missile. *While Dransfield only discloses a rocket motor, as many booster stages as necessary would be inherent in any extended range missile requiring such. However, Dransfeld does not disclose each of the two nosecones being configured to separate from the payload during flight of the missile. Copeland teaches an outer nosecone 14 and an inner nosecone 10, with the outer nosecone 14 being separable during flight in the same field of endeavor for the purpose of protecting the inner nosecone 10. It would have been obvious to one of ordinary skill in the art at the time the invention was made to

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modify Dransfeld to include a protective outer nosecone separable during flight as taught by Copeland in order to protect the remaining nosecone.

4. Re – claim 2, Dransfeld in view of Copeland discloses the claimed invention. Dransfeld further discloses: wherein the two nosecones **16**, **13** include an outer nosecone **16** and an inner nosecone **13**; and wherein the nosecone **13** is located at least partially within the assembly **15**, internal to the nosecone **16**.

5. Re – claim 3, Dransfeld in view of Copeland discloses the claimed invention. Dransfeld further discloses: wherein the nosecone **16** has a more streamlined shape than the nosecone **13**.

6. Re – claim 4, Dransfeld in view of Copeland discloses the claimed invention. Dransfeld further discloses: wherein the nosecone **16** has a sharper cone angle than the nosecone **13**.

7. Re – claim 5, Dransfeld in view of Copeland discloses the claimed invention. Dransfeld further discloses: wherein the nosecone **16** has an outer nose cone having a *substantially straight outer nosecone external surface portion, the outer nosecone having an angle of between about 5 degrees and about 10 degrees, e.g., around reference character **18** of Fig. 2. *The limitation “substantially straight” can be considered to be anticipated by Dransfeld, given that Dransfeld’s disclosure states “...member **16** of ogival external shape...”, since an ogive is defined as a front consisting of the conical head of a missile or rocket that protects the payload from heat during its passage through the atmosphere, since there is nothing in the definition of ‘conical’ to preclude a substantially straight external surface, and since it would appear from the Figs. that the member **16** is a substantially straight.

8. Re – claim 6, Dransfeld in view of Copeland discloses the claimed invention. Dransfeld further discloses: wherein the inner nosecone **13** has a substantially straight inner nosecone

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external surface portion, best seen in Fig. 2, that portion of inner nosecone 13 apparently in contact with an inner side of portion 20, for example.

9. Re – claim 7, Dransfeld in view of Copeland discloses the claimed invention. Copeland teaches a different separation mechanism, namely shape charge 20, in the same field of endeavor for the purpose of removing elements 16 and 18 by aerodynamic forces. It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Dransfeld to include the different separation mechanism as taught by Copeland in order to remove the outer nosecone.

10. Re – claim 15, Dransfeld in view of Copeland discloses the claimed invention. Dransfeld further discloses: wherein the assembly 15 includes an attitude control system 14.

11. Re – claim 16, Dransfeld in view of Copeland discloses the claimed invention. Dransfeld discloses a rocket motor as set forth above regarding claim 1.

12. Re – claim 28, Dransfeld in view of Copeland discloses the claimed method as applied above, and further, Dransfeld discloses separating the inner nosecone from the payload assembly at completion of the second phase of the flight, namely, impact with earth, water, man-made structures, etc., after the missile has completed its mission. This is inherent since Dransfeld discloses that “[d]uring a final phase...the propellant charge in the aft end of the rocket has been expended”, as set forth at col. 2, line 23, for example. If the propellant has been expended, the missile is falling and will impact with something and ‘separate the inner nosecone from the payload assembly at completion of the second phase of the flight’. Examiner notes that in the previous indication of allowable subject matter, the recitation that ‘the second phase...is

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completed at an altitude of at least about 90km' was included in the reasons for indicating allowable subject matter, and that that recitation has been removed by amendment.

13. Concerning method claims 30 – 32, in view of the structure disclosed and/or rendered obvious by Dransfeld in view of Copeland, in particular as applied to claims 18 – 20 above, the method would have been obvious to one of ordinary skill in the art at the time the invention was made as it is the normal and logical manner in which the device could be operated.

14. Re – claims 33 and 34, Dransfeld in view of Copeland discloses the claimed method as applied above, except for maneuvering the missile toward a (moving) target. This is implied, since the missile of Dransfeld discloses guidance means 14, which is certainly capable of being used in just such a capacity.

15. Re – claim 35, Dransfeld in view of Copeland discloses the claimed method as applied above, and further, the 'booster stage' of Dransfeld is yet connected to the nosecone, which separates during a coast portion and before the 'booster stage' separates as applied above.

16. Claims 8 – 11, 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dransfeld in view of Copeland, as applied above, further in view of US Patent No. 3,601,055 to Crockett.

17. Re – claim 8, Dransfeld in view of Copeland discloses the invention substantially as claimed as applied above, including Dransfeld disclosing an ogival fairing constituted by a number of petals which are released prior to the final phase to fall away, as set forth at col. 1, line 20, for example, except for wherein the nosecone 16 includes outer nosecone petals configured to hingedly rotate and separate from the payload assembly. Crockett teaches an outer nosecone, *inter alia*, 24 including outer nosecone petals 26 configured to hingedly rotate and

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separate from a payload assembly, e.g., Fig. 2, in the same field of endeavor for the purpose of protecting a payload and removing the petals during flight. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Dransfield in view of Copeland to include the outer nosecone including outer nosecone petals configured to hingedly rotate and separate from the payload assembly as taught by Crockett in order to protect the payload and remove the petals during flight.

18. Re – claim 9, Dransfield in view of Copeland in view of Crockett discloses the invention substantially as claimed as applied above except for wherein the payload assembly includes a piston actuator coupled to the outer nosecone petals. Dransfield discloses an explosive actuator 25 separating the nosecone 16 from the missile. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dransfield in view of Copeland in view of Crockett to substitute a piston actuator to separate the petals, since the equivalence of a piston actuator and an explosive actuator for their use in the nosecone/petal separation art and the selection of any known equivalents to an explosive actuator would be within the level of ordinary skill in the art.

19. Re – claim 10, Dransfield in view of Copeland in view of Crockett discloses the invention substantially as claimed as applied above. Dransfield further discloses the explosive actuator 25 being in a forward half of the nosecone 16.

20. Re – claim 11, Dransfield in view of Copeland in view of Crockett discloses the invention substantially as claimed as applied above except for the inner nosecone 13 including inner nosecone petals. It would have been obvious to one having ordinary skill in the art at the time the invention was made to further include inner nosecone petals, since it has been held that

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mere duplication of the essential working parts of a device involves only routine skill in the art.

St. Regis Paper Co. v. Bemis Co., 193 USPQ 8.

21. Concerning method claims 36 and 37 in view of the structure disclosed by Dransfield in view of Copeland in view of Crockett as applied above, in particular to claims 8 – 10, the method of operating the device would have been inherent, since it is the normal and logical manner in which the device could be used.

22. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dransfield in view of Copeland, as applied above, further in view of Facciano et al., 11th and 12th JUL 01, as cited by Applicant.

23. Re – claim 13, Dransfield in view of Copeland discloses the claimed invention except for the outer nosecone petals being made of a composite material that is configured to ablate during hypersonic flight through air. Facciano et al. teach such a material being used for such a purpose in the same field of endeavor. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Dransfeld in view of Copeland to utilize a composite material as taught by Facciano et al. in order to protect a missile from thermal effects of hypersonic flight. Also, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

24. Re – claim 14, Dransfeld in view of Copeland in view of Facciano et al. discloses the claimed invention except for the inner nosecone petals being made of aluminum. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use

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aluminum, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Response to Arguments

25. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

26. Claims 12, 17 – 24 and 38 – 48 are allowed.

27. Claim 29 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

28. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record neither discloses nor fairly teaches the claimed combination including :
(claims 12 and 17) inner nosecone petals remaining hermetically sealed throughout at least a part of the second phase of the flight; (claims 18 – 22, 25 – 27 and 38) as dependent upon claims 12 or 17; (claim 23) the separating including moving a center of pressure of the payload assembly aftward and in closer proximity to a center of gravity of the missile; (claims 24 and 39 – 48) as dependent upon claim 23; and (claim 29) the second phase of the flight being completed at an altitude of at least 90 km.

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Conclusion

29. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication should be directed to Bret Hayes at telephone number (571) 272 – 6902. The examiner can normally be reached Monday through Friday from 5:30 am to 3:00 pm, Eastern Standard Time.

If attempts to contact the examiner by telephone are unsuccessful, the examiner's supervisor, Teri Luu, can be reached at (571)272 – 7045. The fax number is (703) 872 – 9306.

bh

13-Jun-05


MICHAEL J. CAROLE
SUPERVISORY PATENT EXAMINER